REMARKS/ARGUMENTS

The above-identified patent application has been reviewed in light of the Examiner's action dated August 25, 2006. Claims 1, 5, 7, 8 and 10 have been amended, and Claims 2-4, 6, 9 and 12-16 have been cancelled, without intending to abandon or to dedicate to the public any patentable subject matter. Claims 17 and 18 are new. Accordingly, Claims 1, 5, 7, 8, 10, 11, 17 and 18 are now pending. As set forth herein, reconsideration and withdrawal of the objections to and rejections of the claims are respectfully requested.

Initially, Applicants note that the election without traverse of Claims 1-11 has been acknowledged. Accordingly, Claims 12-16 were withdrawn from consideration. In the amendments set forth above, Claims 12-16 have been canceled, in order to expedite prosecution of this application. However, Applicant expressly reserves the right to pursue these claims in a divisional application.

Claims 1-11 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In particular, the Office Action finds that the term "ordinary" renders Claim 1 indefinite. In the amendments set forth above, this term has been removed from the Claim. Accordingly, the rejection of Claim 1 as indefinite should be reconsidered and withdrawn. With respect to Claim 8, the Office Action finds that "the radiation" lacks proper antecedent basis. In the amendments set forth above, Claim 8 has been amended to recite "a radiation." Accordingly, it is submitted that the rejection of Claim 8 as indefinite should be reconsidered and withdrawn. Claims 2, 3, 4 and 9 have been cancelled. Accordingly, the rejections of those claims as indefinite are now moot.

Claims 1-9 stand rejected under 35 U.S.C. § 103 as being unpatentable over JP-2002-325355 ("Sugawara '55") in view of Sugawara, "Recent Progress in SiC Power Device Developments in Application Studies," April 14-17, 2003 ("Sugawara"). In order to establish a *prima facie* case of obviousness under § 103, there must be some suggestion or motivation to modify the reference or to combine the reference teachings, there must a reasonable expectation of success, and the prior art reference or references must teach or suggest all the claim

limitations. (MPEP § 2143.) However, all of the claim elements cannot be found in the cited references, whether those references are considered alone or in combination. Accordingly, reconsideration and withdrawal of the rejections of the claims as obvious in view of the cited references are respectfully requested.

In "Sugawara," there is description stating that "[t]he SiC pn diode has a higher built-in potential, but it can be reduced by increasing the device temperature with a very compact heat sink," (See page 15, left column, first paragraph in "Sugawara"). As is understood from the description, "Sugawara" does not disclose any concrete value of temperature at which the wide-gap bipolar semiconductor element should be heated. In contrast, amended Claim 1 defines that heating means heats said wide-gap bipolar semiconductor element at a temperature of 125°C or more.

The Examiner states that one having an ordinary skill in the art at the time the invention was made would be motivated to modify "Sugawara '55 (JP-2002-325355)" by incorporating a heating means so as to reduce the built-in potential as taught by "Sugawara". However, "heating said wide-gap bipolar semiconductor element at a temperature of 125°C or more" causes an important advantage of preventing the destruction of the element, which is neither taught nor suggested by "Sugawara".

For example, the advantage is explained in the specification as follows:

> The stacking faults formed once are not vanished even if the temperature of the element is lowered; hence, in energization is carried out when the temperature of the element is low, a large power loss occurs owing to the action of the stacking faults, and there is a danger that the element may be destroyed. Hence, the temperature of the element rises abruptly and reached 250°C or more in a short time owing to self-heating. Therefore, even if stacking faults are present, the influence thereof can be avoided, and the element can be energized while the ON voltage does not become high.

(See Specification, page 20, line 15 to page 21, line 2.) Thus, "heating said wide-gap bipolar semiconductor element at a temperature of 125°C or more" has an important advantage of preventing the destruction of the element, which is neither taught nor suggested by "Sugawara".

As is understood from the above description in the specification, the "temperature of 125°C or more" is defined based not on a design choice but on a physical property of the wide gap bipolar semiconductor device usually having some stacking faults.

Furthermore, the maximum rating of junction temperature (TjMAX) of almost all Si-based semiconductor devices should be defined as 125°C, because of a physical property, *i.e.* the energy gap of Si. Engineers in the field of semiconductors usually have to spend considerable effort to keep semiconductor devices at a temperature of less than 125°C, because Si loses its semiconductor property and Si-based semiconductor devices will not work at a temperature of 125°C or more. Therefore, "temperature of 125°C or more" was a matter beyond the imagination of one having an ordinary skill in the art, even though there was a description "increasing the device temperature" in "Sugawara".

Therefore, one having an ordinary skill in the art at the time the invention was made would never be motivated to modify "Sugawara '55" by "heating said wide-gap bipolar semiconductor element at a temperature of 125°C or more".

Accordingly, amended Claim 1 is not obvious from "Sugawara '55" and "Sugawara" and reconsideration and withdrawal of the rejection of Claim 1 are respectfully requested.

With regards to Claims 5, 7, 8, 10, 11 and 17, these claims are dependent on amended Claim 1. Therefore, Claims 5, 7, 8, 10, 11 and 17 are not obvious in view of the cited references for at least the same reasons that Claim 1 is not obvious, and the rejections of these claims should be reconsidered and withdrawn.

Claim 18 is new. Claim 18 includes a recitation of "heating means for heating said wide-gap bipolar semiconductor element inside said semiconductor package at a temperature of 125°C or more." As noted above, such features are not taught, suggested or described by the cited references. In addition, Claim 18 recites a "temperature sensor" and "a temperature controller that keeps the temperature of said wide-gap bipolar semiconductor element at the temperature of 125°C or more on the basis of a detection output of said temperature sensor." Such aspects recited by Claim 18 are also not taught, suggested or described by the cited references. Accordingly, Claim 18 should be allowed.

The application now appearing to be in form for allowance, early notification of the same is respectfully requested. The Examiner is invited to contact the undersigned by telephone if doing so would be of assistance.

Respectfully submitted,

SHERIDAN ROSS P.C.

By: _____

Bradley M. Knepper
Registration No. 44,189
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

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